

SUPPLEMENTARY DATA

Table S1. Logistic regression analysis adjusted for age to assess the association of echocardiographic features with female sex

Variables	Odds ratio (95%CI)	<i>P</i>
LVEDD, mm	0.96 (0.93-0.98)	.001
LVESD, mm	0.97 (0.95-1.01)	.109
LVEDVi, mL/m ²	0.98 (0.96-0.99)	< .001
LVESVi, mL/m ²	0.98 (0.97-1.00)	.076
LV mass, g/m ²	0.99 (0.98-1.00)	.042
LVEF, %	0.99 (0.97-1.01)	.434
LV GLS, %	1.05 (1.01-1.10)	.023
E/A	0.84 (0.50-1.40)	.505
E/e'	1.13 (1.04-1.23)	.006
LA diameter	0.98 (0.96-1.01)	.253
LA volume index, mL/ m ²	0.99 (0.99-1.00)	.251
LA reservoir strain, %	0.97 (0.95-0.99)	< .001
LA conduit strain, % – patients in SR (n = 237)	1.05 (1.02-1.08)	.008
LA contractile strain, % – patients in SR (n = 237)	1.02 (0.99-1.05)	.240
Moderate or severe tricuspid regurgitation	3.02 (1.77-5.15)	< .001
TAPSE, mm	1.03 (1.01-1.05)	.014
S' wave, cm/s	0.88 (0.80-0.98)	.028
RV free wall strain, %	1.01 (0.98-1.03)	.716
PASP, mmHg	1.02 (1.00-1.03)	.012
RV-PA coupling	0.28 (0.14-0.59)	.001

95%CI, 95% confidence intervals; EROA, effective regurgitation orifice area; LA, left atrium; LV, left ventricle; LVEDD, left ventricular end-diastolic diameter; LVEDVi, indexed left ventricular end-diastolic volume; LVEF, left ventricular ejection fraction; LVESD, left ventricular end-systolic diameter; LVESVi, indexed left ventricular end-systolic volume; LV GLS, global longitudinal strain; MR, mitral regurgitation; PASP, pulmonary artery systolic pressure; RV, right ventricle; RV-PA, right ventricle-pulmonary artery; SR, sinus rhythm; TAPSE, tricuspid annular plane systolic excursion.

Table S2. Perioperative information and early postoperative outcomes between men and women

Variables	All patients (N = 349)	Men (n = 195)	Women (n = 154)	<i>P</i>
<i>Procedure</i>				
Mitral valve repair	122 (35.0)	85 (43.6)	37 (24.0)	< .001
Mitral valve replacement ^a	227 (65.0)	110 (56.4)	117 (76.0)	< .001
Concomitant tricuspid valve repair ^b	59 (16.9)	16 (8.2)	43 (27.9)	< .001
Coronary artery bypass graft	41 (11.8)	30 (15.4)	11 (7.1)	.018
Concomitant surgical AF ablation	54 (15.5)	31 (15.9)	23 (14.9)	.805
Cross-clamp time, min	77 [60-96.5]	84.5 [62-105]	71 [57-89]	< .001
Cardiopulmonary bypass time, min	98 [77-130]	108 [79-142]	90 [76-114]	.002
<i>Early postoperative complications and outcomes</i>				
ICU stay duration, d	1 [1-3]	1 [1-3]	2 [1-3]	.485
Need for inotropes	59 (16.9))	29 (14.9)	30 (19.5)	.254
Prolonged intubation	37 (10.6)	19 (9.7)	18 (11.7)	.558
Stroke	10 (2.9)	4 (2.1)	6 (3.9)	.305
Severe acute renal failure	9 (2.6)	5 (2.6)	4 (2.6)	.984
Acute myocardial infarction	13 (3.7)	10 (5.1)	3 (2.0)	.119
Postoperative bleeding requiring re-exploration	30 (8.6)	17 (8.7)	13 (8.4)	.927
Permanente pacemaker rates	21 (6.0)	13 (6.7)	8 (5.2)	.566
Postoperative AF/flutter	66 (18.9)	39 (20.0)	27 (17.5)	.559
Mean postoperative mitral valve gradient, mmHg	3.5 ± 1.6	3.4 ± 1.6	3.6 ± 1.6	.232
Residual MR	40 (13.9)	26 (15.8)	14 (11.5)	.300
Redo surgery within the first year after the index procedure ^c	9 (2.5)	5 (2.6)	4 (2.6)	.874

AF, atrial fibrillation; ICU, intensive care unit; LVEF, left ventricular ejection fraction; MR, mitral regurgitation.

The data are presented as No. (%), mean ± standard deviation, or median [interquartile range].

^aAmong patients treated with MR replacement, 140 received mechanical prostheses and 87 received bioprostheses.

^bConcomitant tricuspid valve repair was performed using a semirigid ring annuloplasty in 42 patients, and with De Vega suture annuloplasty in 17.

^cIn men, 4 out of 5 reinterventions within the first year were due to repair failure, and 1 was due to significant prosthetic leak. In women, 2 out of 4 were due to repair failure, and 2 were due to prosthetic thrombosis.

Table S3. Comparison of baseline and 1-year follow-up echocardiographic parameters between men and women among 283 patients with complete follow-up imaging data

Variables	Men (n = 161)			Women (n = 122)		
	Baseline echo	1-year FU echo	<i>P</i>	Baseline echo	1-year FU echo	<i>P</i>
LVEF, %	59.6 ± 9	56.9 ± 8	< .001	58.8 ± 10	55.4 ± 8	< .001
LVEDD, mm	52.7 ± 10	48.6 ± 9	< .001	48.3 ± 8	45.5 ± 7	< .001
LVESD, mm	34.6 ± 8	33.4 ± 8	.058	32.4 ± 7	31 ± 7	.029
LVEDVi, mL	78 ± 25	62 ± 21	< .001	60 ± 23	52 ± 18	< .001
LVESVi, mL	31.3 ± 13	29.5 ± 16	.167	25.2 ± 12	23.8 ± 13	.200
LV-GLS, %	-16.7 ± 5	-10.8 ± 4	< .001	-14.6 ± 5	-10 ± 4	< .001
LA volume index, mL/m ²	63 ± 33	47.7 ± 36	< .001	56.1 ± 19	45.9 ± 22	< .001
LA reservoir strain, %	23.5 ± 14	12.3 ± 9	< .001	17.2 ± 13	11.3 ± 8.5	< .001
TAPSE, mm	21.2 ± 5	18.1 ± 4	< .001	19.5 ± 4	17.4 ± 7	.008
PASP, mmHg	32.3 ± 16	27.3 ± 9	< .001	39.5 ± 15	32.6 ± 13	< .001
RV free wall strain, %	-18.4 ± 8	-12.8 ± 7	< .001	-17.5 ± 8	-12.3 ± 7	< .001
RV-PA coupling	0.82 ± 0.4	0.72 ± 0.25	.003	0.61 ± 0.3	0.60 ± 0.27	.733
Moderate or severe tricuspid regurgitation	25 (15.3)	19 (11.8)	< .001	51 (42.5)	35 (28.6)	< .001

FU, follow-up; LA, left atrium; LV, left ventricle; LVEDD, left ventricular end-diastolic diameter; LVEDVi, indexed left ventricular end-diastolic volume; LVEF, left ventricular ejection fraction; LVESD, left ventricular end-systolic diameter; LVESVi, indexed left ventricular end-systolic volume; LV-GLS, LV global longitudinal strain; PASP, pulmonary artery systolic pressure; RV, right ventricle; RV-PA, right ventricle-pulmonary artery; TAPSE, tricuspid annular plane systolic excursion..

The data are presented as No. (%) or mean ± standard deviation.

Table S4. Causes of death within the first year after surgery in our cohort

	All patients (N = 29)	Men (n = 12)	Women (n = 17)
Surgical complications/poscardiotomy shock	11	7	4
Stroke	2	0	2
Respiratory complications/SARS-CoV ₂ pneumonia	3	1	2
Septic shock	4	1	3
Other noncardiac reasons	9	3	6

Table S5. Multivariable Cox regression analysis for the composite endpoint of heart failure admissions and all-cause mortality 1 year after surgery in patients in sinus rhythm (n = 237).

Variables	Multivariable analysis	
	HR (95%CI)	<i>P</i>
EuroSCORE II	1.05 (1.01-1.09)	.008
LA reservoir strain, %	0.95 (0.90-0.99)	.049
RV-PA coupling, mm/mmHg	0.17 (0.25-0.97)	.042

Variables considered for the multivariable model were female sex, EuroSCORE II, right ventricle-pulmonary artery coupling, and left atrium reservoir strain.

HR, hazard ratio; LA, left atrium; RV-PA: right ventricle-pulmonary artery.